

**CIRCUIT PROTECTION DEVICE WITH GROUNDED NEUTRAL HALF  
CYCLE SELF TEST**

**ABSTRACT OF THE INVENTION**

The present invention is directed to a circuit and method for self-testing a protection device for use in an AC power distribution system. The device is configured to be coupled between an AC power distribution system and at least one load. The method includes the step of introducing a simulated ground neutral fault during a first predetermined half cycle half cycle of the AC power. An attempt is made to detect the introduced simulated grounded neutral fault during the first predetermined half cycle half cycle. A fault condition is signaled if the introduced simulated grounded neutral fault is not detected within a predetermined period of time.